

Dr. Roy Sullivan
PUBLICATIONS

Journal

2005

1. Sullivan, Roy M., "A Model for the Oxidation of Carbon Silicon Carbide Composite Structures," Carbon, Vol. 43, No. 2, pp 275-285, 2005.

1997

2. Sullivan, Roy M. and Stokes, Eric, "A Model for the Effusion of Water in Carbon Phenolic Composites," Mechanics of Materials, Vol. 26, pp 197-207, 1997.

1996

3. Lee, S., Salamon, N. J. and Sullivan, R. M., "Finite Element Analysis of Poroelastic Composite Structures with Thermal and Gas Diffusion: Part I - Axisymmetric Theory," AIAA Journal of Thermophysics and Heat Transfer, Vol. 10, No. 4, pp 672-680, 1996.
4. Sullivan, Roy M., "The Effect of Water on Thermal Stresses in Polymer Composites," ASME Journal of Applied Mechanics, Vol. 63, No. 1, pp 173-179, March, 1996.

1995

5. Sullivan, Roy M., "The Effect of Water on the Thermal Expansion Behavior of FM5055 Carbon Phenolic," in Recent Advances in Composite Materials, Scott White, Tom Hahn and Walter Jones, eds., ASME MD-Vol. 56, pp 133-142, 1995.

1993

6. Sullivan, R. M., "A Coupled Solution Method for Predicting the Thermostructural Response of Decomposing, Expanding Polymeric Composites," Journal of Composite Materials, Vol. 27, No. 4, pp 408, 1993.
7. Sullivan, Roy M., "On the Constitutive Relations for the High-Temperature, Nonlinear Expansion of Polymeric Composites," in Mechanics of Composite Materials - Nonlinear Effects, M. W. Hyer, ed., ASME AMD-Vol. 159, pp 331-342, 1993.

1992

8. Sullivan, R. M. and Salamon, N. J., "A Finite Element Method for the Thermochemical Decomposition of Polymeric Materials - Part I Theory," International Journal of Engineering Science, Vol. 30, No. 4, pp 431-441, 1992.
9. Sullivan, R. M. and Salamon, N. J., "A Finite Element Method for the Thermochemical Decomposition of Polymeric Materials - Part II: Carbon Phenolic Composites," International Journal of Engineering Science, Vol. 30, No. 7, pp 939-951, 1992.

NASA Technical Reports

2003

1. Sullivan, Roy M., Palko, Joe, Davis, Darrell and Prickett, Terry, "Thermal and Thermostructural Analysis of FASTRAC Engine Thrust Chamber-Nozzle with C/SiC Nozzle Extension," NASA/TP-2003-212464, December, 2003.
2. Sullivan, Roy M., "A Model for the Oxidation of C/SiC Composite Structures," NASA/TM-2003-212720, November, 2003.
3. Murthy, Pappu L. N., Sullivan, Roy M. and Mital, Subodh, K., "Modeling of a Three-Dimensional Woven Angle Interlock C/SiC Ceramic Matrix Composite," NASA/TM-2003-212381, June, 2003.

2001

4. Sullivan, Roy M., "Thermal Analysis of a Carbon-Carbon Bearing Design for Exoskeletal Engine Bearings," NASA/TM-2001-210946, June, 2001.

1999

5. Sullivan, R. M. and Stokes, E. H., "Porous Media and Mixture Models for Hygrothermal Behavior of Phenolic Composites," NASA/TM-1999-209444, October, 1999.
6. Sullivan, R. M. and Goldberg, B. E., "Workshop on the Future of Composite Materials in Space Transportation," NASA/CP-1999-209733, June, 1999.
7. Sullivan, Roy M., Kovacevich, Ted, Berry, David, M., and Ahmed, Rafiq, "Analysis of Residual Stresses in Ablative Composite Thrust Chamber/Nozzles," NASA/TM-1999-209052, March, 1999.

1998

8. Brown, A. M. and Sullivan, R. M., "Dynamic Modeling and Correlation of the X-34 Composite Rocket Nozzle," NASA/TP-1998-208531, July, 1998.

1990

9. Sullivan, Roy Michael, "A Finite Element Model for Thermochemically Decomposing Polymers," Ph.D. Dissertation, The Pennsylvania State University, UMI Publications, August 1990.

1986

10. Sullivan, Roy M., "Hydroburst Test of a Carbon-Carbon Involute Exit Cone," NASA TP-2556, January, 1986.

Books/Monographs/Special Issues

1999

1. Sullivan, Roy. M., Salamon, N. J., Keyhani, Majid and White, Scott, eds., Application of Porous Media Methods for Engineered Materials, ASME Publication, AMD-Vol. 233, 1999.

1992

2. Salamon, N. J. and Sullivan, R. M., eds., Computational Mechanics of Porous Solid Materials and Their Thermal Decomposition, ASME Publication, AMD-Vol. 136, 1992.

Conference Proceedings and Presetations

2004

1. Gabb, T. P.; Telesman, J.; Kantzos, P. T.; Bonacuse, P. J.; Barrie, R. L.; and Hornbach, D., "Stress Relaxation in Powder Metallurgy Superalloy Disks," Powder Metallurgy Symposium 2004; 14-18 Mar., 2004; Charlotte, NC
2. Ghosn, M., Telesman, J., Bonacuse, P., Barrie, R., Ghosn, L., and Kantzos, P., "Probabilistic Fatigue Life Estimation of Seeded UDIMET 720 Superalloy Specimens," presented at 9th ASCE Joint Specialty Conference on Probabilistic Mechanics and Structural Reliability, July 26-28, 2004, Albuquerque, NM
3. Sullivan, Roy M., "A Model for the Oxidation Behavior of C/SiC Composite Structures, Part I - Theory," presented at the 28th Annual Conference on Composites, Materials and Structures, Radisson Resort at the Port Cocoa Beach/Cape Canaveral, FL, 26-30 January 2004.
4. Sullivan, Roy M., "A Model for the Oxidation Behavior of C/SiC Composite Structures, Part II - TGA Simulation Results," presented at the 28th Annual Conference on Composites, Materials and Structures, Radisson Resort at the Port Cocoa Beach/Cape Canaveral, FL, 26-30 January 2004.
5. Mital, Subodh, Murthy, Pappu, Sullivan, Roy and Palko, Joseph, "Modeling of Carbon-SiC Composites for Space Applications," presented at the 28th Annual Conference on Composites, Materials and Structures, Radisson Resort at the Port Cocoa Beach/Cape Canaveral, FL, 26-30 January 2004.
6. Hurwitz, F., Calomino, A., and Sullivan, R., "Commingled C and SiC Fibers to Reduce Matrix Cracking in C/SiC Composites," presented at the 28th Annual Conference on Composites, Materials and Structures, Radisson Resort at the Port Cocoa Beach/Cape Canaveral, FL, 26-30 January 2004.

2003

7. Sullivan, Roy M., "A Model for the Oxidation of C/SiC Composite Structures," in the Proceedings of the Joint JANNAF Meeting (39th CS/ 27th APS/ 21st PSHS/ 3rd MSS), Colorado Springs, CO, 1-5 December, 2003.

8. Hurwitz, F. I., Calomino, A. M. and Sullivan, R. M., "Development of C/SiC Composites with Commingled C and SiC Fibers," in the Proceedings of the Joint JANNAF Meeting (39th CS/ 27th APS/ 21st PSHS/ 3rd MSS), Colorado Springs, CO, 1-5 December, 2003.
9. Murthy, Pappu L. N., Sullivan, Roy M., and Mital, Subodh K., "Modeling of 3-D Woven Ceramic Matrix Composites," in the Proceedings of the 48th International SAMPE Symposium and Exhibition, pp. 392, Long Beach, CA, 11-15 May, 2003.
10. Hurwitz, F., Calomino, A. and Sullivan, R., "Integrated CMC/Insulating Core/PMC Panels for Hot Structures," presented at the 27th Annual Conference on Composites, Materials and Structures, Cocoa Beach, FL, 27-31 January 2003.
11. Calomino, A., Hurwitz, F. and Sullivan, R., "Co-Mingling of Silicon Carbide and Carbon Fibers for Enhanced Durability of C/SiC Composites," presented at the 27th Annual Conference on Composites, Materials and Structures, Cocoa Beach, FL, 27-31 January 2003.
12. Koenig, John, Sullivan, Roy M., and Sullivan, Brian J., "Role of Oxidation Effects Model in CMC Design Methodology for RLV Control Surfaces," presented at the 27th Annual Conference on Composites, Materials and Structures, Cocoa Beach, FL, 27-31 January 2003.
13. Pete Bonacuse, Louis Ghosn, Jack Telesman, Pete Kantzos, Tim Gabb, and Rob Barrie, "Modeling the Distribution in Fatigue Life from Inclusion Initiated Failures in PM Superalloys," presented at the 6th Annual FAA/Air Force/NASA/Navy Workshop on the Application of Probabilistic Methods to Gas Turbine Engines, March 18-20, 2003, Solomon's Island, MD
14. P. T. Kantzos, R. Barrie, P. Bonacuse, J. Telesman, T. P. Gabb, "Effectiveness of Shot Peening in Suppressing Fatigue Cracking at Non-Metallic Inclusions in Udimet™ 720," presented at the 14th AeroMat Conference & Exposition, 9-12 June, 2003, Dayton, OH
15. Pete Kantzos, Pete Bonacuse, Louis Ghosn, Jack Telesman, Tim Gabb, and MAJ Rob Barrie, "Probabilistic Lifting Approach for P/M Ni Turbine Disks," presented at FAA 2003 Annual Rotor Integrity R, E&D Review, Aug. 12-14, 2003, Atlantic City, NJ.
16. Bonacuse, P. J. and Kalluri, S., "Damage Assessment of Combustion Devices," 5th International Symposium on Liquid Space Propulsion: Long Life Combustion Devices Technology, October 27-30, 2003, Chattanooga, TN
17. Louis J. Ghosn; Pete T. Kantzos; Robert L. Barrie; and Peter J. Bonacuse; "Unfolding the Ceramic Inclusion Size Distribution in a Powder Metallurgy Alloy from Planar Section," presented at TMS Materials Science and Technology 2003, Nov. 9-12, Chicago, IL.

2002

18. Sullivan, Roy M., Subodh K. Mital and Pappu L. N. Murthy, "Modeling of a 3-D Angle Interlock C/SiC Composite, in the Proceedings of the 39th Annual Technical Meeting of

the Society of Engineering Science, The Pennsylvania State University, University Park, PA, 13-16 October, 2002.

19. Sullivan, Roy M., Calomino, Anthony M., Hurwitz, Frances I. and Eldridge, Jeffrey I., "Design Studies for Hybrid Airframe Structures Development for Reusable Space Vehicles," poster at the National Space & Missile Materials Symposium, Colorado Springs, CO, 23-28 June, 2002.
20. Koenig, J., Cuneo, J., Sullivan, R., Sullivan, B. and Paquette, T., "Ceramic Matrix Composite Design Methodology," in the Proceedings of the 26th Annual Conference on Composites, Materials and Structures, Cocoa Beach, FL, 28-31 January, 2002.
21. Jack Telesman, Pete Kantzos, Pete Bonacuse, Louis Ghosn, Tim Gabb, and MAJ Rob Barrie, "Low Cycle Fatigue Behavior of Udimet 720 Superalloy Seeded with Alumina Inclusions," presented at the 2002 ASME International Mechanical Engineering Conference: Fatigue of High Temperature Materials, November 17, 2002, New Orleans, LA.

2000

22. Gabb, Timothy P.; Bonacuse, Peter J.; Ghosn, Louis J.; Sweeney, Joseph W.; Chatterjee, Amit; and Green, Kenneth A., "Assessment of Low Cycle Fatigue Behavior of Powder Metallurgy Alloy U720," presented at ASTM 31st National Symposium on Fatigue and Fracture Mechanics, June 22-24, 2000, Cleveland, OH.

1999

23. Sullivan, Roy M. and Stokes, Eric H., "Porous Media and Mixture Models for Hygrothermal Behavior of Phenolic Composites," in Application of Porous Media Methods for Engineered Materials, ASME Publication AMD-Vol. 233, pp 33, presented at the ASME International Mechanical Engineering Congress and Exposition, Nashville, TN, 14-19 November, 1999.
24. Kalluri, Sreeramesh and Bonacuse, Peter J., "Cumulative Axial and Torsional Fatigue: An Investigation of Load-Type Sequencing Effects," presented at the ASTM Symposium on Multiaxial Fatigue and Deformation: Testing and Prediction, 19-20 May 1999, Seattle, WA

1998

25. Brown, Andrew M. and Sullivan, Roy M., "Dynamic Modeling and Correlation of the X-34 Composite Rocket Nozzle," in the Proceedings of the JANNAF Rocket Nozzle Technology Subcommittee Meeting, Salt Lake City, UT, 16-20 March 1998.
26. Richardson, D. E., Ehle, C. M. and Sullivan, Roy M., "Summary of Thermostructural Analyses of Phenolic Analog Specimens Which Have Been Tested in the LHMEF Facility," in the Proceedings of the JANNAF Rocket Nozzle Technology Subcommittee Meeting, Salt Lake City, UT, 16-20 March 1998.

1996

27. Sullivan, Roy M. and Stokes, Eric, "A Model for the Effusion of Water in Carbon Phenolic Composites," in the Proceedings of the ASME Aerospace and Materials

Divisions, ASME Publication AD-Vol. 51/MD-Vol. 73, pp 77, presented at the ASME International Mechanical Engineering Congress and Exposition, Atlanta, GA, 17-22 November 1996.

1995

28. Dr. Paul J. Laumakis and Peter J. Bonacuse, "Experimental Validation of an Analytical Composite Failure Model," 4th Annual ARL/USMA Technical Symposium (AUTS), United States Military Academy at West Point, NY, November 3, 1995.

1994

29. Sullivan, Roy M., "The Effect of Water on the Thermal Expansion Behavior of FM5055 Carbon Phenolic," in the Proceedings of the JANNAF Rocket Nozzle Technology Subcommittee Meeting, Boeing Defense and Space Group, Seattle, WA, 15-17 November 1994.
30. Sullivan, Roy M., "A Thermodynamic Model for Hygrothermal Behavior in Polymer Composites," in the Proceedings of the 35th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference, Hilton Head, SC, 18-20 April 1994.

1992

31. Sullivan, Roy M., "Thermodynamics and Moisture Swelling in FM5055," in the Proceedings of the JANNAF Rocket Nozzle Technology Subcommittee Meeting, Lockheed Missiles and Space Company, Sunnyvale, CA, 7-10 December 1992.
32. Sullivan, R. M., "A Coupled Solution Method for Predicting the Thermostructural Response of Decomposing, Expanding Polymeric Composites," in Computational Mechanics of Porous Solid Materials and Their Thermal Decomposition, ASME Publication AMD-Vol. 136, pp 121-132, presented at the ASME Summer Mechanics and Materials Conference, Tempe, AZ, 28 April-1 May, 1992.
33. Kalluri, S. and Bonacuse, P. J., "High Temperature Axial-Torsional Fatigue Testing: Tubular Specimen Design Issues," paper presented at the ASME Symposium on Experimental Methods for High Temperature Material Behavior Characterization, Scottsdale, Arizona, April 1992.
34. Bonacuse, P. J., "A Rule Based System for Estimating High Temperature Fatigue Life," International Symposium on Automation in Fatigue and Fracture Testing and Analysis, June 15-17, 1992, Paris, France
35. Bonacuse, P. J. and Kalluri, S., "Cyclic Axial-Torsional Deformation Behavior of a Cobalt-Base Superalloy," presented at the Second ASTM Symposium on Cyclic Deformation, Fracture, and Nondestructive Evaluation of Advanced Materials, Miami, Florida, November 16-17, 1992.

1990

36. Sullivan, R. M. and Salamon, N. J., "A Finite Element Formulation for the Thermochemical Decomposition of Thermosetting Polymers," in the Proceedings of the JANNAF Rocket Nozzle Technology Subcommittee Meeting, Jet Propulsion Laboratory, Pasadena, CA, 23-25 October 1990.

1989

37. Sullivan, R. M. and Salamon, N. J., "Formulation of a 2-D Finite Element to Model the Thermomechanical Behavior of Thermally Decomposing Polymers," in the Proceedings of the JANNAF Rocket Nozzle Technology Subcommittee Meeting, Naval Surface Warfare Center, Silver Spring, MD, 17-19 October 1989.